

CLAIMS:

- 1 1. A method for dynamically sharing a limited supply of Internet Protocol (IP)
2 addresses among a larger number of servers comprising the steps of:
3 receiving a request for an IP address associated with a domain name;
4 searching a table comprising a listing of one or more available IP addresses;
5 selecting an IP address from said one or more available IP addresses in said
6 table if said domain is not assigned a particular IP address, wherein said selected IP
7 address is valid for a predetermined period of time; and
8 returning said selected IP address to said listing of one or more available IP
9 addresses upon expiration of said predetermined period of time and determining that
10 there does not exist a persistent connection with a server hosting a web site of said
11 domain name.
- 1 2. The method as recited in claim 1, wherein if said domain name is assigned
2 said particular IP address, then the method further comprises the steps of:
3 adjusting a predetermined period of time said particular IP address is valid;
4 and
5 transmitting said particular IP address along with said updated period of time
6 said particular IP address is valid.
- 1 3. The method as recited in claim 2 further comprising the steps of:
2 receiving a request to access said server hosting said web site of said domain
3 name with said particular IP address; and
4 translating said particular IP address into a non-routable IP address associated
5 with said server hosting said web site of said domain name.
- 1 4. The method as recited in claim 3 further comprising the steps of:
2 receiving a packet of data and said non-routable IP address from said server;
3 and

4 translating said non-routable IP address into said particular IP address.

1 5. The method as recited in claim 4 further comprising the step of:
2 transmitting said received packet of data with said particular IP address.

1 6. The method as recited in claim 1, wherein if said domain name is assigned
2 multiple IP addresses, then the method further comprises the steps of:

3 selecting an IP address from said multiple IP addresses based on a number of
4 requests to each server assigned with an IP address of said multiple IP addresses;

5 adjusting a predetermined period of time of said selected IP address from said
6 multiple IP addresses that said selected IP address is valid; and

7 transmitting said selected IP address from said multiple IP addresses along
8 with said updated period of time said selected IP address is valid.

1 7. The method as recited in claim 6 further comprising the steps of:
2 receiving a request to access said server hosting said web site of said domain
3 name with said selected IP address from said multiple IP addresses; and

4 translating said selected IP address from said multiple IP addresses into a non-
5 routable IP address associated with said server hosting said web site of said domain
6 name.

1 8. The method as recited in claim 7 further comprising the steps of:

2 receiving a packet of data and said non-routable IP address from said server,
3 wherein said non-routable IP address is associated with said selected IP address from
4 said multiple IP addresses; and

5 translating said non-routable IP address into said selected IP address from said
6 multiple IP addresses.

1 9. The method as recited in claim 8 further comprising the step of:
2 transmitting said received packet of data with said selected IP address from
3 said multiple IP addresses.

1 10. The method as recited in claim 1 further comprising the steps of:
2 updating said table to indicate that said selected IP address is no longer
3 available; and
4 transmitting said selected IP address along with a predetermined period of
5 time said selected IP address is valid.

1 11. The method as recited in claim 10 further comprising the steps of:
2 receiving a request to access said server hosting said web site of said domain
3 name with said selected IP address; and
4 translating said selected IP address into a non-routable IP address associated
5 with said server hosting said web site of said domain name.

1 12. The method as recited in claim 11 further comprising the steps of:
2 receiving a packet of data and said non-routable IP address from said server;
3 and
4 translating said non-routable IP address into said selected IP address.

1 13. The method as recited in claim 12 further comprising the step of:
2 transmitting said received packet of data with said selected IP address.

1 14. The method as recited in claim 1 further comprising the steps of:
2 monitoring said predetermined period of time said selected IP address is valid;
3 and
4 determining if there exists a persistent connection with said server hosting
5 said web site of said domain name upon expiration of said predetermined period of
6 time.

1 15. The method as recited in claim 14 further comprising the step of:
2 resetting said predetermined period of time said selected IP address is valid if
3 there exists a persistent connection with said server hosting said web site of said
4 domain name.

1 16. The method as recited in claim 2 further comprising the steps of:
2 monitoring said adjusted predetermined period of time said particular IP
3 address is valid; and
4 determining if there exists a persistent connection with said server hosting
5 said web site of said domain name upon expiration of said adjusted predetermined
6 period of time.

1 17. The method as recited in claim 16 further comprising the step of:
2 returning said particular IP address to said listing of one or more available IP
3 addresses if there does not exist a persistent connection with said server hosting said
4 web site of said domain name.

1 18. The method as recited in claim 16 further comprising the step of:
2 resetting said adjusted predetermined period of time of said particular IP
3 address if there exists a persistent connection with said server hosting said web site of
4 said domain name.

1 19. The method as recited in claim 6 further comprising the steps of:
2 monitoring said adjusted predetermined period of time said selected IP
3 address from said multiple IP addresses is valid; and
4 determining if there exists a persistent connection with said server hosting
5 said web site of said domain name upon expiration of said adjusted predetermined
6 period of time.

1 20. The method as recited in claim 19 further comprising the step of:
2 returning said selected IP address from said multiple IP addresses to said
3 listing of one or more available IP addresses if there does not exist a persistent
4 connection with said server hosting said web site of said domain name.

1 21. The method as recited in claim 19 further comprising the step of:
2 resetting said adjusted predetermined period of time of said selected IP
3 address from said multiple IP addresses if there exists a persistent connection with
4 said server hosting said web site of said domain name.

1 22. The method as recited in claim 1 further comprising the steps of:
2 monitoring said listing of one or more available IP addresses; and
3 adjusting one or more predetermined period of times associated with one or
4 more available IP addresses if there is not an adequate listing of one or more available
5 IP addresses.

1 23. The method as recited in claim 1 further comprising the steps of:
2 monitoring a number of requests to said server hosting said web site of said
3 domain name; and
4 adjusting a predetermined period of time associated with an IP address
5 assigned to said server based on said number of requests to said server.

1 24. A system, comprising:
2 a plurality of servers configured to host one or more web sites; and
3 a manager coupled to said plurality of servers, wherein said manager is
4 configured to map domain name into corresponding Internet Protocol (IP) addresses,
5 wherein said manager comprises:
6 a memory unit operable for storing a computer program operable for
7 dynamically sharing a limited supply of Internet Protocol (IP) addresses among a
8 larger number of said plurality of server of servers; and
9 a processor coupled to said memory unit, wherein said processor,
10 responsive to said computer program, comprises:
11 circuitry operable for receiving a request for an IP address
12 associated with a domain name;
13 circuitry operable for searching a table comprising a listing of
14 one or more available IP addresses;
15 circuitry operable for selecting an IP address from said one or
16 more available IP addresses in said table if said domain is not assigned a particular IP
17 address, wherein said selected IP address is valid for a predetermined period of time;
18 and
19 circuitry operable for returning said selected IP address to said
20 listing of one or more available IP addresses upon expiration of said predetermined
21 period of time and determining that there does not exist a persistent connection with a
22 server of said plurality of servers hosting a web site of said domain name.

1 25. The system as recited in claim 24, wherein if said domain name is assigned
2 said particular IP address, then said manager further comprises:
3 circuitry operable for adjusting a predetermined period of time said particular
4 IP address is valid; and

5 circuitry operable for transmitting said particular IP address along with said
6 updated period of time said particular IP address is valid.

1 26. The system as recited in claim 25, wherein said manager further comprises:
2 circuitry operable for receiving a request to access said server of said plurality
3 of servers hosting said web site of said domain name with said particular IP address;
4 and

5 circuitry operable for translating said particular IP address into a non-routable
6 IP address associated with said server of said plurality of servers hosting said web site
7 of said domain name.

1 27. The system as recited in claim 26, wherein said manager further comprises:
2 circuitry operable for receiving a packet of data and said non-routable IP
3 address from said server of said plurality of servers; and
4 circuitry operable for translating said non-routable IP address into said
5 particular IP address.

1 28. The system as recited in claim 27, wherein said manager further comprises:
2 circuitry operable for transmitting said received packet of data with said
3 particular IP address.

1 29. The system as recited in claim 24, wherein if said domain name is assigned
2 multiple IP addresses, then said manager further comprises:

3 circuitry operable for selecting an IP address from said multiple IP addresses
4 based on a number of requests to each server of said plurality of servers assigned with
5 an IP address of said multiple IP addresses;

6 circuitry operable for adjusting a predetermined period of time of said selected
7 IP address from said multiple IP addresses that said selected IP address is valid; and

8 circuitry operable for transmitting said selected IP address from said multiple
9 IP addresses along with said updated period of time said selected IP address is valid.

1 30. The system as recited in claim 29, wherein said manager further comprises:
2 circuitry operable for receiving a request to access said server of said plurality
3 of servers hosting said web site of said domain name with said selected IP address
4 from said multiple IP addresses; and

5 circuitry operable for translating said selected IP address from said multiple IP
6 addresses into a non-routable IP address associated with said server of said plurality
7 of servers hosting said web site of said domain name.

1 31. The system as recited in claim 29, wherein said manager further comprises:
2 circuitry operable for receiving a packet of data and said non-routable IP
3 address from said server of said plurality of servers, wherein said non-routable IP
4 address is associated with said selected IP address from said multiple IP addresses;
5 and

6 circuitry operable for translating said non-routable IP address into said
7 selected IP address from said multiple IP addresses.

1 32. The system as recited in claim 31, wherein said manager further comprises:
2 circuitry operable for transmitting said received packet of data with said
3 selected IP address from said multiple IP addresses.

1 33. The system as recited in claim 24, wherein said manager further comprises:
2 circuitry operable for updating said table to indicate that said selected IP
3 address is no longer available; and
4 circuitry operable for transmitting said selected IP address along with a
5 predetermined period of time said selected IP address is valid.

1 34. The system as recited in claim 33, wherein said manager further comprises:
2 circuitry operable for receiving a request to access said server of said plurality
3 of servers hosting said web site of said domain name with said selected IP address;
4 and

5 circuitry operable for translating said selected IP address into a non-routable
6 IP address associated with said server of said plurality of servers hosting said web site
7 of said domain name.

1 35. The system as recited in claim 34, wherein said manager further comprises:
2 circuitry operable for receiving a packet of data and said non-routable IP
3 address from said server of said plurality of servers; and

4 circuitry operable for translating said non-routable IP address into said
5 selected IP address.

1 36. The system as recited in claim 35, wherein said manager further comprises:
2 circuitry operable for transmitting said received packet of data with said
3 selected IP address.

1 37. The system as recited in claim 24, wherein said manager further comprises:
2 circuitry operable for monitoring said predetermined period of time said
3 selected IP address is valid; and

4 circuitry operable for determining if there exists a persistent connection with
5 said server of said plurality of servers hosting said web site of said domain name
6 upon expiration of said predetermined period of time.

1 38. The system as recited in claim 37, wherein said manager further comprises:
2 circuitry operable for resetting said predetermined period of time said selected
3 IP address is valid if there exists a persistent connection with said server of said
4 plurality of servers hosting said web site of said domain name.

1 39. The system as recited in claim 25 further comprises:
2 circuitry operable for monitoring said adjusted predetermined period of time
3 said particular IP address is valid; and
4 circuitry operable for determining if there exists a persistent connection with
5 said server of said plurality of servers hosting said web site of said domain name
6 upon expiration of said adjusted predetermined period of time.

1 40. The system as recited in claim 39, wherein said manager further comprises:
2 circuitry operable for returning said particular IP address to said listing of one
3 or more available IP addresses if there does not exist a persistent connection with said
4 server of said plurality of servers hosting said web site of said domain name.

1 41. The system as recited in claim 39, wherein said manager further comprises:
2 circuitry operable for resetting said adjusted predetermined period of time of
3 said particular IP address if there exists a persistent connection with said server of
4 said plurality of servers hosting said web site of said domain name.

1 42. The system as recited in claim 29, wherein said manager further comprises:
2 circuitry operable for monitoring said adjusted predetermined period of time
3 said selected IP address from said multiple IP addresses is valid; and
4 circuitry operable for determining if there exists a persistent connection with
5 said server of said plurality of servers hosting said web site of said domain name
6 upon expiration of said adjusted predetermined period of time.

1 43. The system as recited in claim 42, wherein said manager further comprises:
2 circuitry operable for returning said selected IP address from said multiple IP
3 addresses to said listing of one or more available IP addresses if there does not exist a
4 persistent connection with said server of said plurality of servers hosting said web site
5 of said domain name.

1 44. The system as recited in claim 42, wherein said manager further comprises:
2 circuitry operable for resetting said adjusted predetermined period of time of
3 said selected IP address from said multiple IP addresses if there exists a persistent
4 connection with said server of said plurality of servers hosting said web site of said
5 domain name.

1 45. The system as recited in claim 24, wherein said manager further comprises:
2 circuitry operable for monitoring said listing of one or more available IP
3 addresses; and
4 circuitry operable for adjusting one or more predetermined period of times
5 associated with one or more available IP addresses if there is not an adequate listing
6 of one or more available IP addresses.

1 46. The system as recited in claim 24, wherein said manager further comprises:
2 circuitry operable for monitoring a number of requests to said server of said
3 plurality of servers hosting said web site of said domain name; and
4 circuitry operable for adjusting a predetermined period of time associated with
5 an IP address assigned to said server of said plurality of servers based on said number
6 of requests to said server of said plurality of servers hosting said web site of said
7 domain name.

1 47. A computer program product embodied in a machine readable medium for
2 dynamically sharing a limited supply of Internet Protocol (IP) addresses among a
3 larger number of servers comprising the programming steps of:

4 receiving a request for an IP address associated with a domain name;
5 searching a table comprising a listing of one or more available IP addresses;
6 selecting an IP address from said one or more available IP addresses in said
7 table if said domain is not assigned a particular IP address, wherein said selected IP
8 address is valid for a predetermined period of time; and

9 returning said selected IP address to said listing of one or more available IP
10 addresses upon expiration of said predetermined period of time and determining that
11 there does not exist a persistent connection with a server hosting a web site of said
12 domain name.

1 48. The computer program product as recited in claim 47, wherein if said domain
2 name is assigned said particular IP address, then the computer program product
3 further comprises the programming steps of:

4 adjusting a predetermined period of time said particular IP address is valid;
5 and

6 transmitting said particular IP address along with said updated period of time
7 said particular IP address is valid.

1 49. The computer program product as recited in claim 48 further comprising the
2 programming steps of:

3 receiving a request to access said server hosting said web site of said domain
4 name with said particular IP address; and

5 translating said particular IP address into a non-routable IP address associated
6 with said server hosting said web site of said domain name.

1 50. The computer program product as recited in claim 49 further comprising the
2 programming steps of:

3 receiving a packet of data and said non-routable IP address from said server;
4 and
5 translating said non-routable IP address into said particular IP address.

1 51. The computer program product as recited in claim 50 further comprising the
2 programming step of:

3 transmitting said received packet of data with said particular IP address.

1 52. The computer program product as recited in claim 47, wherein if said domain
2 name is assigned multiple IP addresses, then the computer program product further
3 comprises the programming steps of:

4 selecting an IP address from said multiple IP addresses based on a number of
5 requests to each server assigned with an IP address of said multiple IP addresses;

6 adjusting a predetermined period of time of said selected IP address from said
7 multiple IP addresses that said selected IP address is valid; and

8 transmitting said selected IP address from said multiple IP addresses along
9 with said updated period of time said selected IP address is valid.

1 53. The computer program product as recited in claim 52 further comprising the
2 programming steps of:

3 receiving a request to access said server hosting said web site of said domain
4 name with said selected IP address from said multiple IP addresses; and

5 translating said selected IP address from said multiple IP addresses into a non-
6 routable IP address associated with said server hosting said web site of said domain
7 name.

1 54. The computer program product as recited in claim 53 further comprising the
2 programming steps of:

3 receiving a packet of data and said non-routable IP address from said server,
4 wherein said non-routable IP address is associated with said selected IP address from
5 said multiple IP addresses; and

6 translating said non-routable IP address into said selected IP address from said
7 multiple IP addresses.

1 55. The computer program product as recited in claim 54 further comprising the
2 programming step of:

3 transmitting said received packet of data with said selected IP address from
4 said multiple IP addresses.

1 56. The computer program product as recited in claim 47 further comprising the
2 programming steps of:

3 updating said table to indicate that said selected IP address is no longer
4 available; and

5 transmitting said selected IP address along with a predetermined period of
6 time said selected IP address is valid.

1 57. The computer program product as recited in claim 46 further comprising the
2 programming steps of:

3 receiving a request to access said server hosting said web site of said domain
4 name with said selected IP address; and

5 translating said selected IP address into a non-routable IP address associated
6 with said server hosting said web site of said domain name.

1 58. The computer program product as recited in claim 57 further comprising the
2 programming steps of:

3 receiving a packet of data and said non-routable IP address from said server;
4 and

5 translating said non-routable IP address into said selected IP address.

1 59. The computer program product as recited in claim 58 further comprising the
2 programming step of:

3 transmitting said received packet of data with said selected IP address.

1 60. The computer program product as recited in claim 47 further comprising the
2 programming steps of:

3 monitoring said predetermined period of time said selected IP address is valid;
4 and

5 determining if there exists a persistent connection with said server hosting
6 said web site of said domain name upon expiration of said predetermined period of
7 time.

1 61. The computer program product as recited in claim 60 further comprising the
2 programming step of:

3 resetting said predetermined period of time said selected IP address is valid if
4 there exists a persistent connection with said server hosting said web site of said
5 domain name.

1 62. The computer program product as recited in claim 48 further comprising the
2 programming steps of:

3 monitoring said adjusted predetermined period of time said particular IP
4 address is valid; and

5 determining if there exists a persistent connection with said server hosting
6 said web site of said domain name upon expiration of said adjusted predetermined
7 period of time.

1 63. The computer program product as recited in claim 62 further comprising the
2 programming step of:

3 returning said particular IP address to said listing of one or more available IP
4 addresses if there does not exist a persistent connection with said server hosting said
5 web site of said domain name.

1 64. The computer program product as recited in claim 62 further comprising the
2 programming step of:

3 resetting said adjusted predetermined period of time of said particular IP
4 address if there exists a persistent connection with said server hosting said web site of
5 said domain name.

1 65. The computer program product as recited in claim 52 further comprising the
2 programming steps of:

3 monitoring said adjusted predetermined period of time said selected IP
4 address from said multiple IP addresses is valid; and

5 determining if there exists a persistent connection with said server hosting
6 said web site of said domain name upon expiration of said adjusted predetermined
7 period of time.

1 66. The computer program product as recited in claim 65 further comprising the
2 programming step of:

3 returning said selected IP address from said multiple IP addresses to said
4 listing of one or more available IP addresses if there does not exist a persistent
5 connection with said server hosting said web site of said domain name.

1 67. The computer program product as recited in claim 65 further comprising the
2 programming step of:

3 resetting said adjusted predetermined period of time of said selected IP
4 address from said multiple IP addresses if there exists a persistent connection with
5 said server hosting said web site of said domain name.

1 68. The computer program product as recited in claim 47 further comprising the
2 programming steps of:

3 monitoring said listing of one or more available IP addresses; and
4 adjusting one or more predetermined period of times associated with one or
5 more available IP addresses if there is not an adequate listing of one or more available
6 IP addresses.

1 69. The computer program product as recited in claim 47 further comprising the
2 programming steps of:

3 monitoring a number of requests to said server hosting said web site of said
4 domain name; and

5 adjusting a predetermined period of time associated with an IP address
6 assigned to said server based on said number of requests to said server.